

INTERNATIONAL SEARCH REPORT

International Application No

PCT/IT 03/00384

A. CLASSIFICATION OF SUBJECT MATTER
IPC 7 A47L5/38

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
IPC 7 A47L

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

EPO-Internal, WPI Data, PAJ

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category °	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	US 3 783 472 A (MOL J) 8 January 1974 (1974-01-08) abstract figures -----	1
A	EP 1 136 026 A (SMITHS GROUP PLC) 26 September 2001 (2001-09-26) abstract figure 3 -----	1
A	WO 98/32363 A (V I B INC) 30 July 1998 (1998-07-30) abstract page 5, line 24 – page 6, line 26 figures 1,3-8 ----- -/-	1

Further documents are listed in the continuation of box C.

Patent family members are listed in annex.

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C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	US 6 158 080 A (SCHLAPKOHL P) 12 December 2000 (2000-12-12) abstract figures 1,4 -----	1

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No

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Patent document cited in search report		Publication date		Patent family member(s)		Publication date
US 3783472	A	08-01-1974	US	3849866 A		26-11-1974
EP 1136026	A	26-09-2001	EP GB US	1136026 A1 2360202 A 2001022009 A1		26-09-2001 19-09-2001 20-09-2001
WO 9832363	A	30-07-1998	AU WO	5929898 A 9832363 A2		18-08-1998 30-07-1998
US 6158080	A	12-12-2000	NONE			

BUILT-IN VACUUM CLEANING BOX WITH AIR OUTSIDE DISCHARGE

5 The present invention is about a built-in vacuum cleaning box with air outside discharge, to be built-in into building walls, that works autonomously and independently like a conventional vacuum cleaner.

At present two systems are in use for room cleaning, namely; portable vacuum cleaners, that oblige the user to move the machine from one place to another, thus making the micrometric dust particles, that the vacuum bag or water filters cannot hold, circulate again in the room, every time connecting to an electricity wall plug which is by far the most universally used system; or the centralized collection system of the vacuumed substances, for the most part installed in industrial establishments and in some commercial building complexes, where there 10 are several intake ports in the building from which proper pipes carry said substances to one or more central collection stations. Of course said system requires the installation of a complex pipe network of considerable length too and the use of a considerable vacuum power in order to carry the substances along 15 considerable distances as well with high installation, maintenance and energy consumption costs.

The present invention solves these problems in a brilliant and surprisingly simple way, combining the concepts of the two systems in such a way as to exploit the advantages of both, moreover without suffering from the disadvantages.

In short, the present invention is about a vacuum cleaning box with air outside 25 discharge to be built-in into the wall of a building, that works autonomously and independently, being equipped with its own dust suction power unit and a respective container for dust collection, therefore the user simply has to connect a suction tube to the corresponding pipe connection of the box, start the engine, do the cleaning, at the end of which the engine is turned off, the tube disconnected and one moves on 30 to another place where the process is repeated connecting to another box without having to move anything but the tube.

The objects, the features and the advantages of the vacuum cleaning box built-in into the wall with air outside discharge, according to the present invention will appear clear and evident from the following detailed description of one of its possible 35 embodiments, given solely as an example and not limiting the scope of the invention,

and made with reference to the attached drawings, in which:

Figures 1 and 2 are general perspective front and rear views of the built-in vacuum cleaning box and with air outside discharge showing its main elements;

Figures 3 and 4 are perspective internal and external views of the individual case built-in into the wall;

Figures 5 and 6 are perspective front and rear views of the main body;

Figures 7 and 8 are perspective front and rear views of the closure of the engine compartment;

Figure 9 is a perspective external view of the bag container;

Figure 10 is a perspective view of the suction pipe fitting; and Figure 11 is a view of the external frame of the box.

With reference to the previously described figures of the attached drawings, the built-in vacuum cleaning box with air outside discharge consists essentially, of three main elements, specifically a container or a basin 10 to be built-in into the wall, a main body 12 and an external frame 14. The basin 10 has the exit hole 18 or outside discharge of the vacuumed air on its bottom 16.

In the basin 10 the main body 12 is inserted, which shows on the lower side the compartment 20 for the dust collection bag (not shown), on whose upper wall 22 the seat 24 for the suction engine (not shown) is to be found and on which the hole 26 is obtained to allow the flow of the vacuumed air towards the bag. The upper part of the main body 12 defines (together) with basin 10 the space 28 where the aforementioned suction motor is housed, with the corresponding on/off switch and electronic card fastened on little pegs 29 and the hole 30 for the intake ports are obtained, the connection between the hole 30 of the intake ports where the vacuuming tube is plugged in and the hole 26 towards the bag being made from the elbow fitting 32 (Figure 10), that shows the inlet 33 of the air that has been vacuumed from the room to be cleaned through the intake port, and the outlet 34 of the flow towards the bag. Said engine compartment 28 is closed by the closing hood 36 (Figures 7 and 8), divided into two sections 37 and 38, where a hole 40 for the exiting discharged air is obtained in the larger section 37 after having been filtered through the corresponding hole 18 at the bottom of the basin 10, already accounted for with reference to Figures 3 and 4. The hole 40 is equipped with a hinge closing-door (not shown) attached to pin 41 on the outer rim of the hole itself. The electrical components are situated in the smaller section 38 and the elbow fitting 32, while the support 42 is attached externally to the power connecting terminal, and a pressure

switch (not shown) can be placed in the cavity 43 to check the filling degree of the bag.

The bag container 44 is equipped with a grip handle 46 in order to extract the container and on the side with the hole 48 for the connection between the vacuum tube and the bag and the arc 50 to access the seat of the engine.

Furthermore, the box is completed with an external frame 14 (Figures 1 and 11) that gives it its external look in the room where its installed, including the closing front plate 51 of the engine compartment 28 and the seats of operation command and control, and that has two doors, an upper one 52 for the internal engine compartment 28, as can be seen in Figure 1, and a lower one (not shown) that closes the compartment 20 where the bag is situated.

Obviously, it is not necessary at this point to show and/or to describe the electrical part of the box, since it does not have any particular characteristics and its implementation is available to any electrical equipment technician.

Clearly, all the components of the box can be made in any suitable material, and since they are usually made of plastic materials the cost of the box is very low, as well as the installation of the box even in already existing buildings, although the installation of the box is particularly cost effective and easy in new buildings, since it is sufficient to provide for a niche in the walls from the beginning for its installation.

Finally, the box's shape and look may vary according to the demands.

It must be noticed, however, that the elements may undergo several modifications, additions and/or changes that may be brought about, however, without moving away from its basic concept, without falling out of the scope of protection as also recited in the following appended claims.

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CLAIMS

1. A built-in vacuum cleaning box with air outside discharge that works autonomously and independently, characterized in that it comprises a case or basin with outside vacuumed and filtered air discharge to be built-in into the wall of a building, a main body inserted into said basin and that defines with said basin an upper compartment containing the autonomous suction power unit and the air intake port, while the dust collection bag forms a lower compartment, as well as an external frame.
2. The built-in vacuum cleaning box with air outside discharge according to Claim 1 is characterized in that the external frame presents a front plate that envelopes the upper compartment of the main body and two closing doors, for the engine compartment and for the bag compartment respectively.
3. The built-in vacuum cleaning box with air outside discharge according to Claim 1 is characterized in that the lower part of the basin has an external hole for the outside discharge of the sucked air after it has been filtered.
4. The built-in vacuum cleaning box with air outside discharge according to Claim 1 is characterized in that the suction motor compartment is to be found on the upper wall of the positioning of the bag compartment.
5. The built-in vacuum cleaning box with air outside discharge according to Claim 1 is characterized in that the engine compartment is closed at the back with a cap that has a hole equipped with a door for the outside exit of the filtered air, connected to the basin's corresponding discharge hole.
6. The built-in vacuum cleaning box with air outside discharge according to Claim 1 is characterized in that the bag's compartment positioning is closed by a container in which said bag is attached, and that is equipped with an extraction handle.
7. Built-in vacuum cleaning box with air outside discharge according to Claim 1 is characterized in that the connection between the intake port for the air to be filtered and the bag compartment consists of an elbow fitting, that shows at its ends the entrance of the intake port and the exit towards the air flow bag, respectively.

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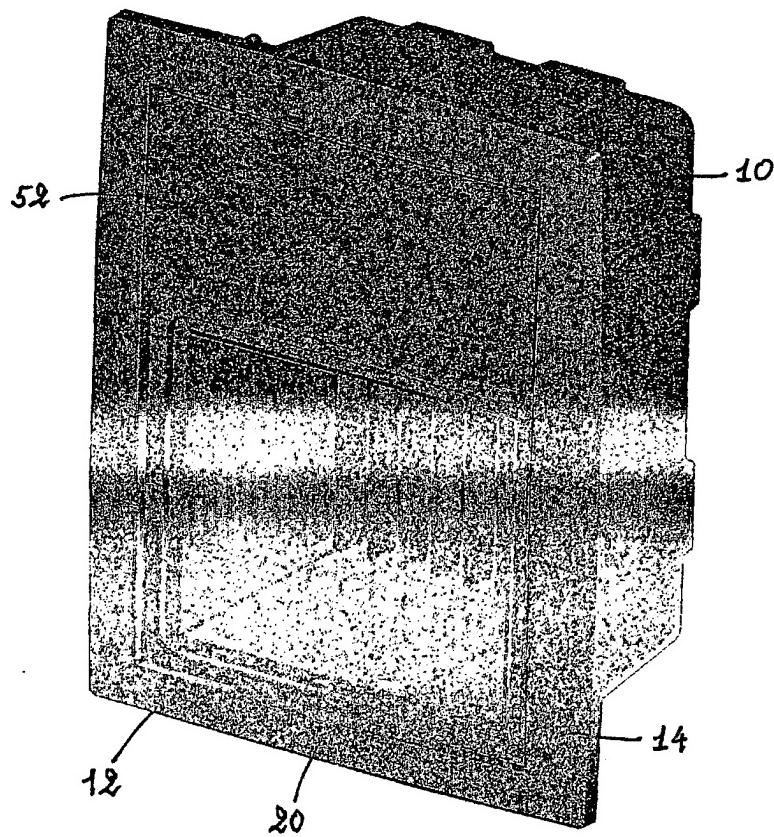
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(54) Title: BUILT-IN VACUUM CLEANING BOX WITH AIR OUTSIDE DISCHARGE



(57) Abstract: A built-in vacuum cleaning box with air outside discharge that works autonomously and independently is disclosed, characterized in that it comprises a case or basin (10) with outside vacuumed and filtered air discharge (18) to be built-in into the wall of a building, a main body (12) inserted into said basin and that defines with said basin an upper compartment (28) containing the autonomous suction power unit and the air intake port (30), while the dust collection bag forms a lower compartment (20), as well as an external frame (14).



For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

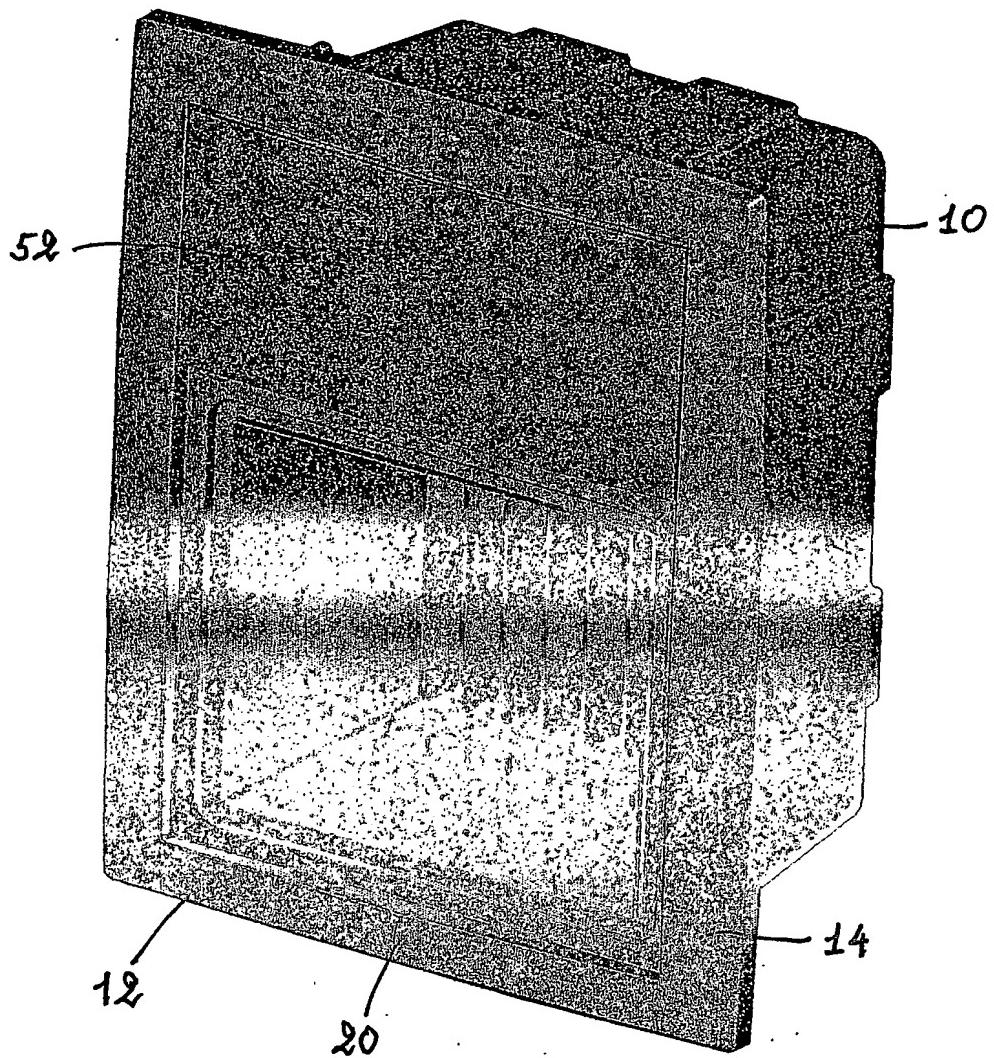


Fig. 1

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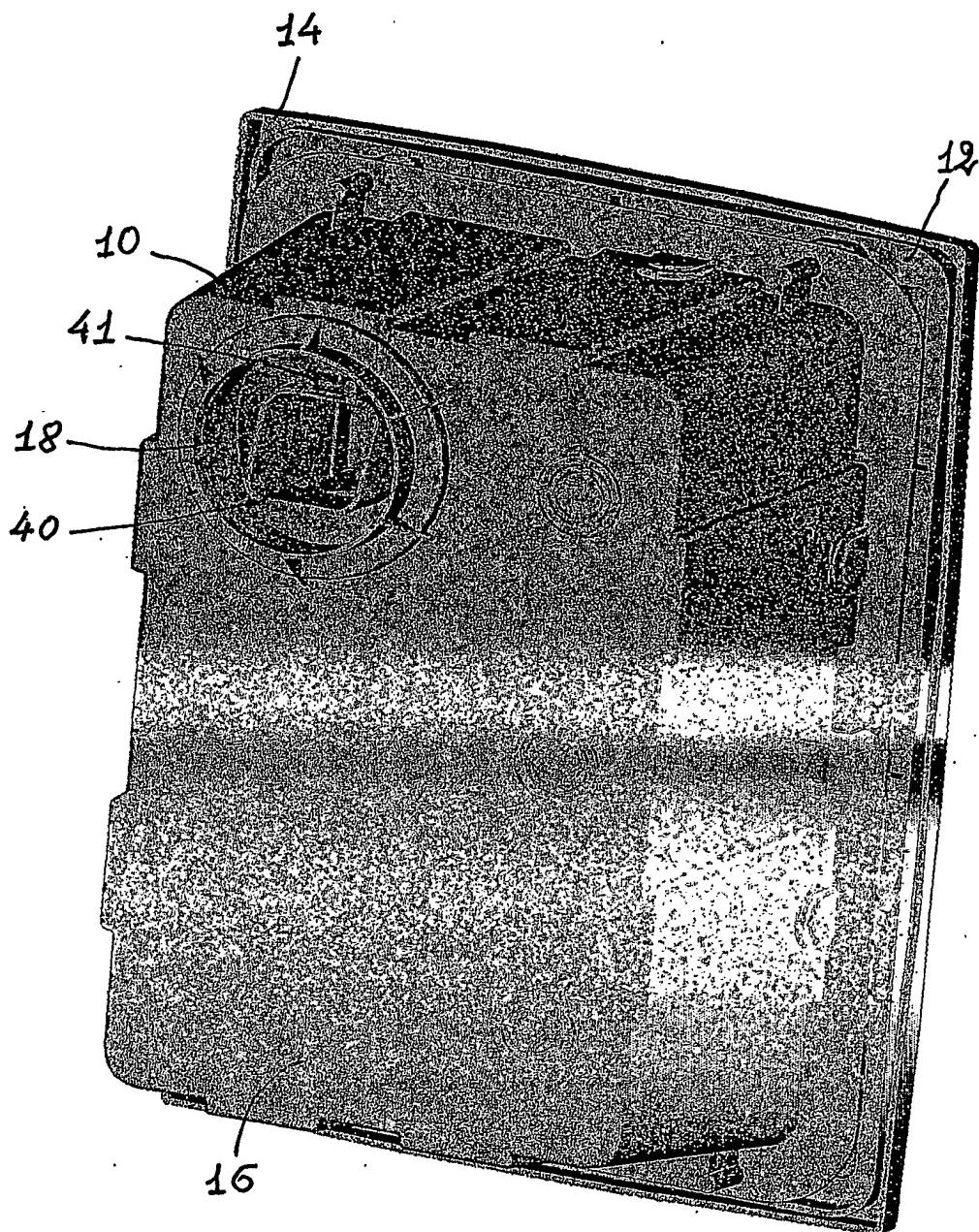


Fig. 2

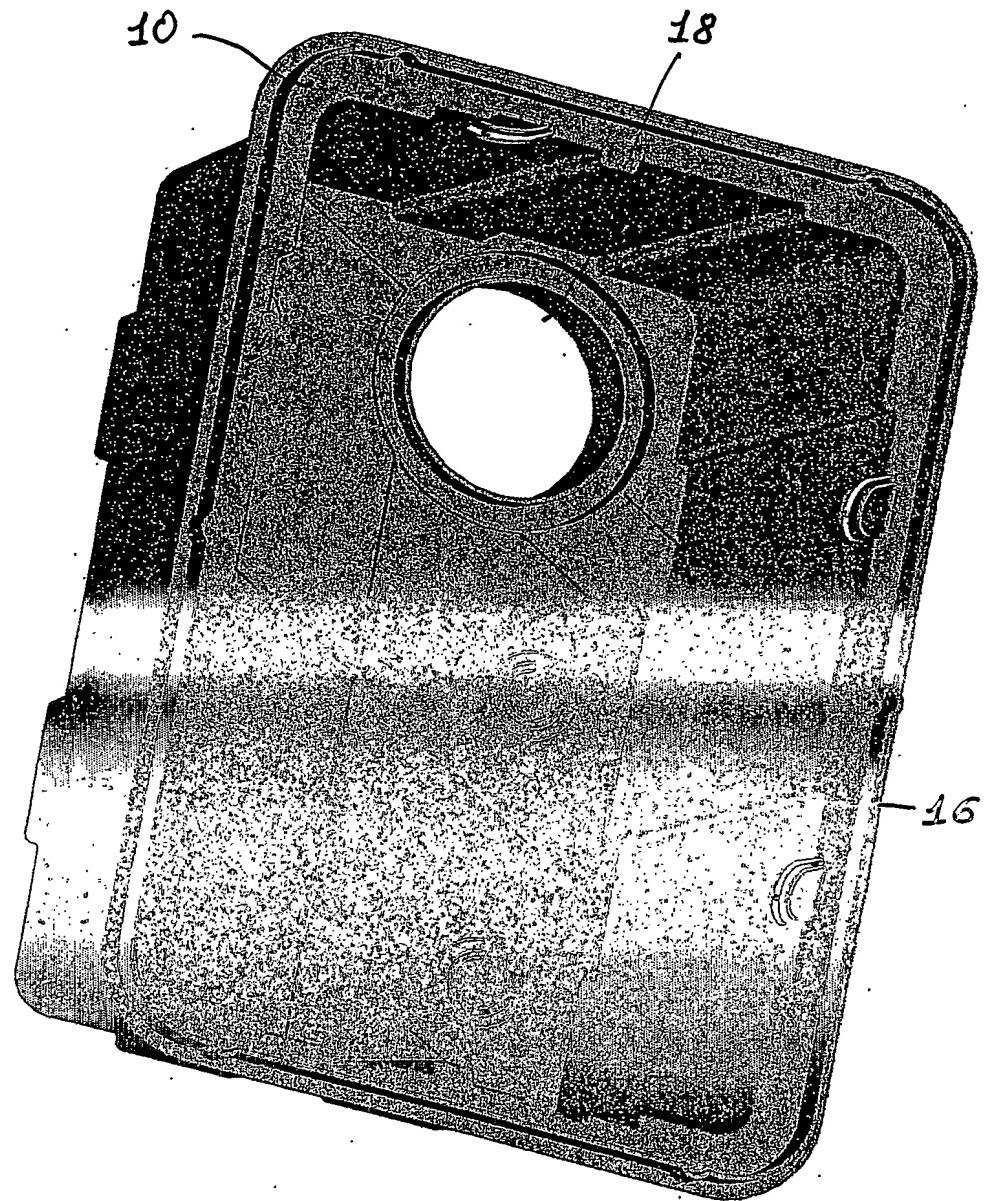


Fig. 3

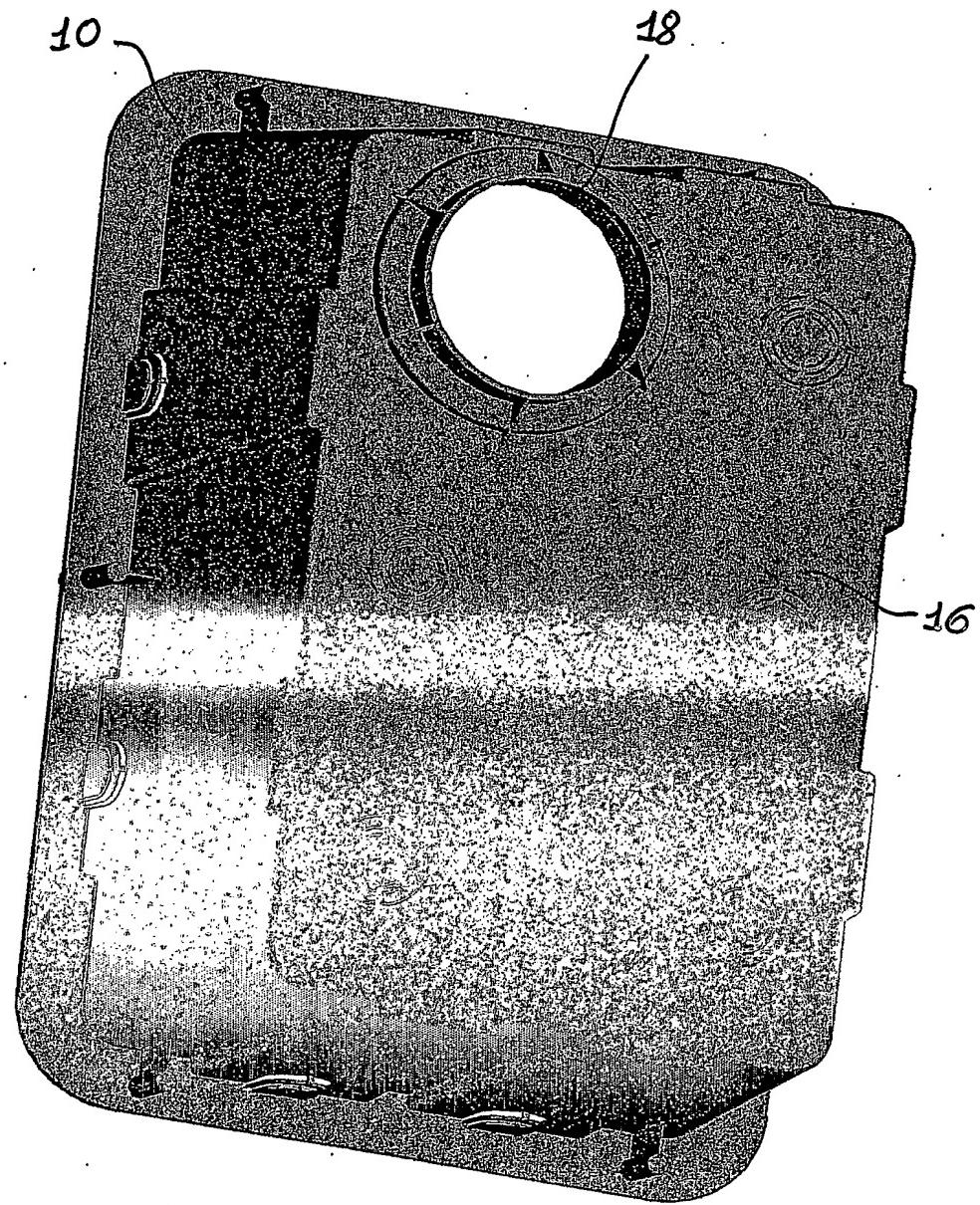


Fig. 4

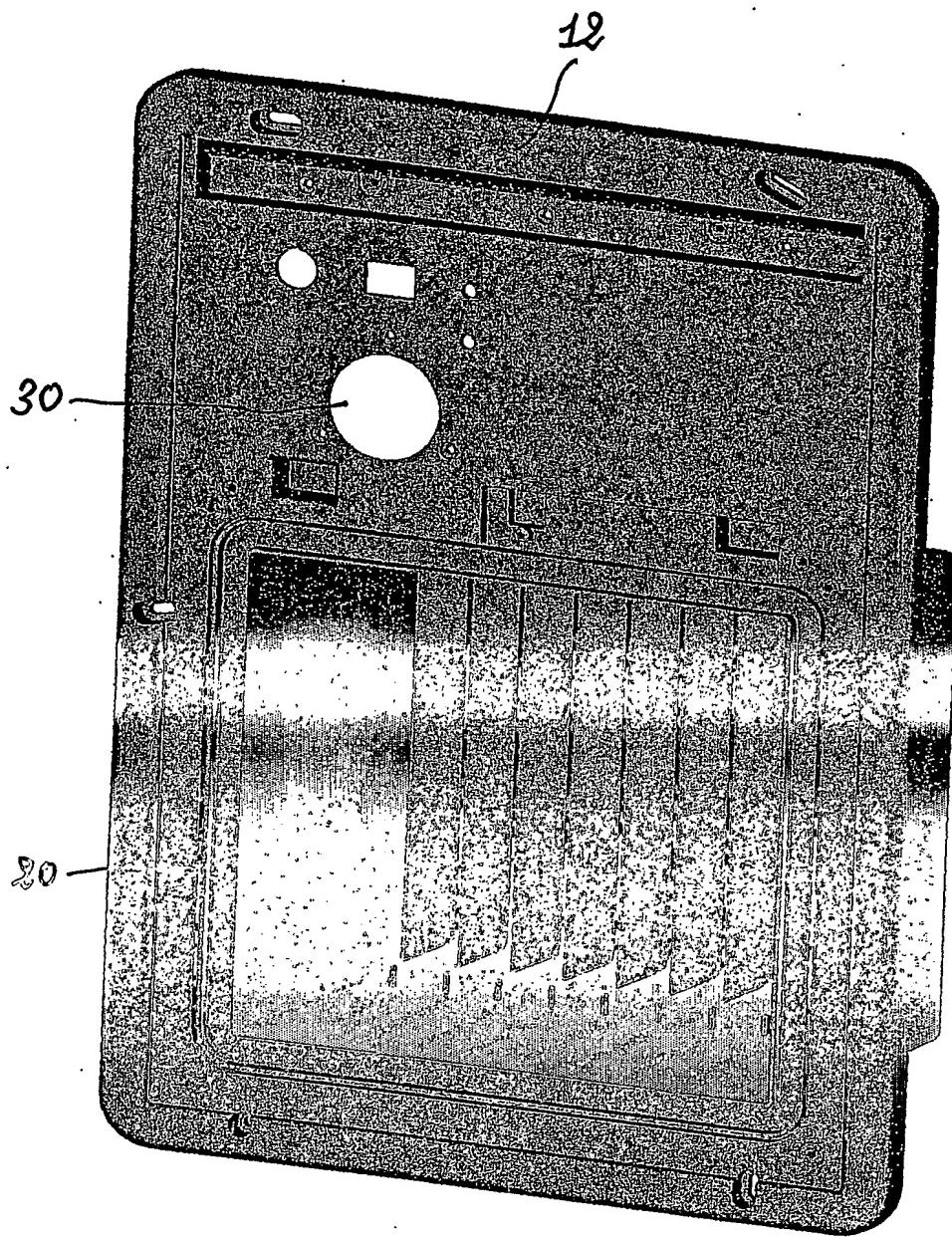


Fig. 5

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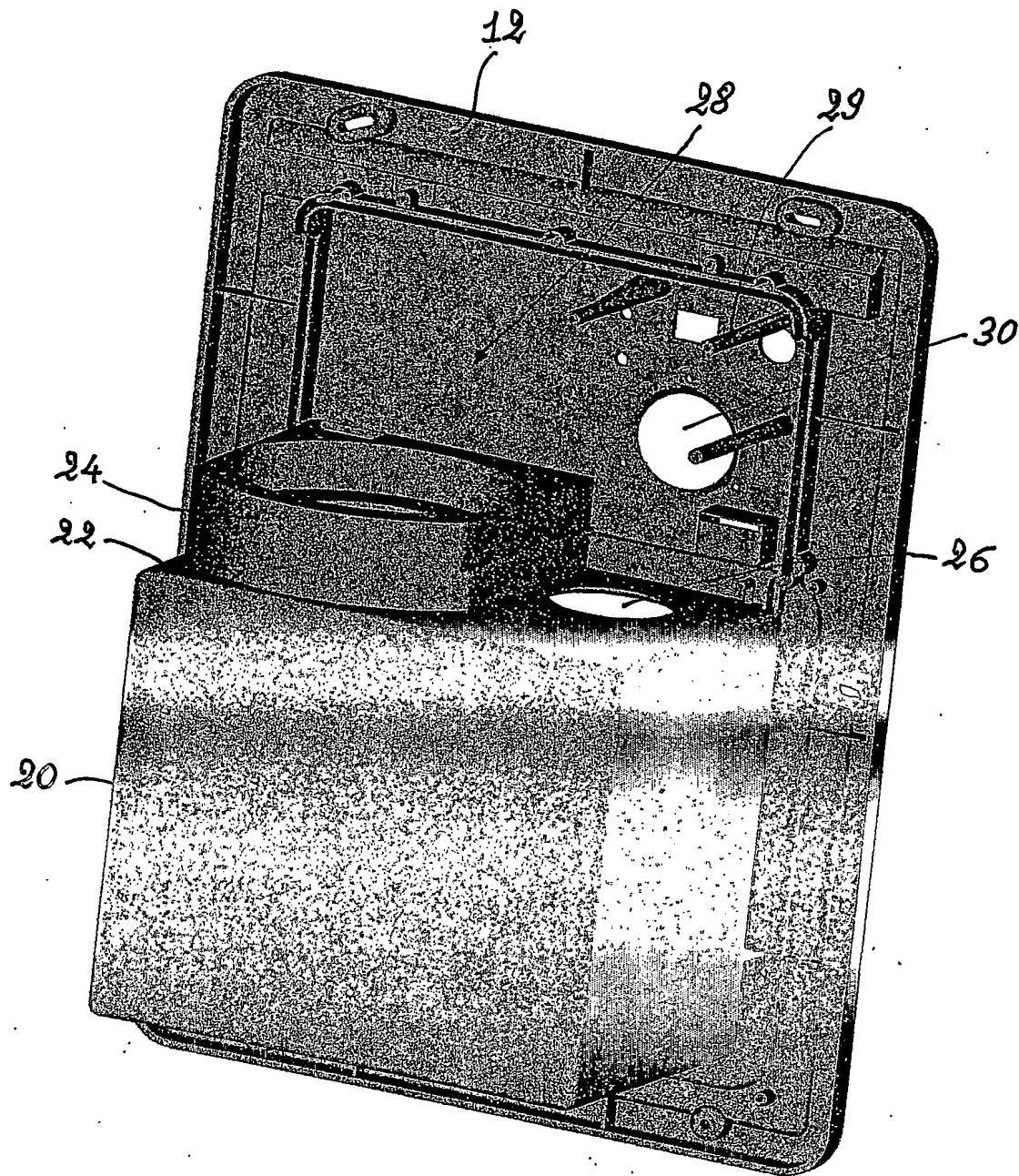


Fig. 6

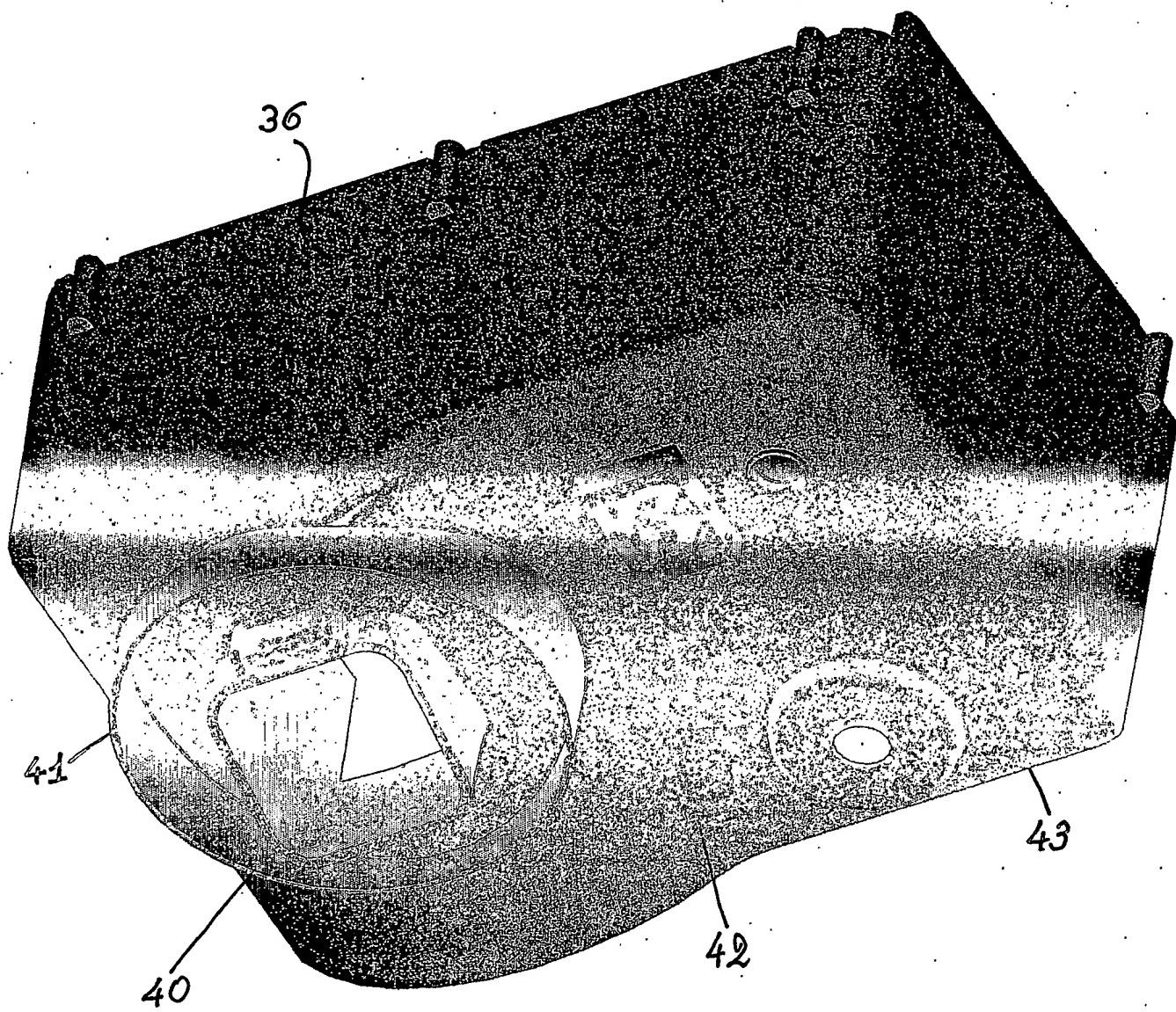


Fig. 7

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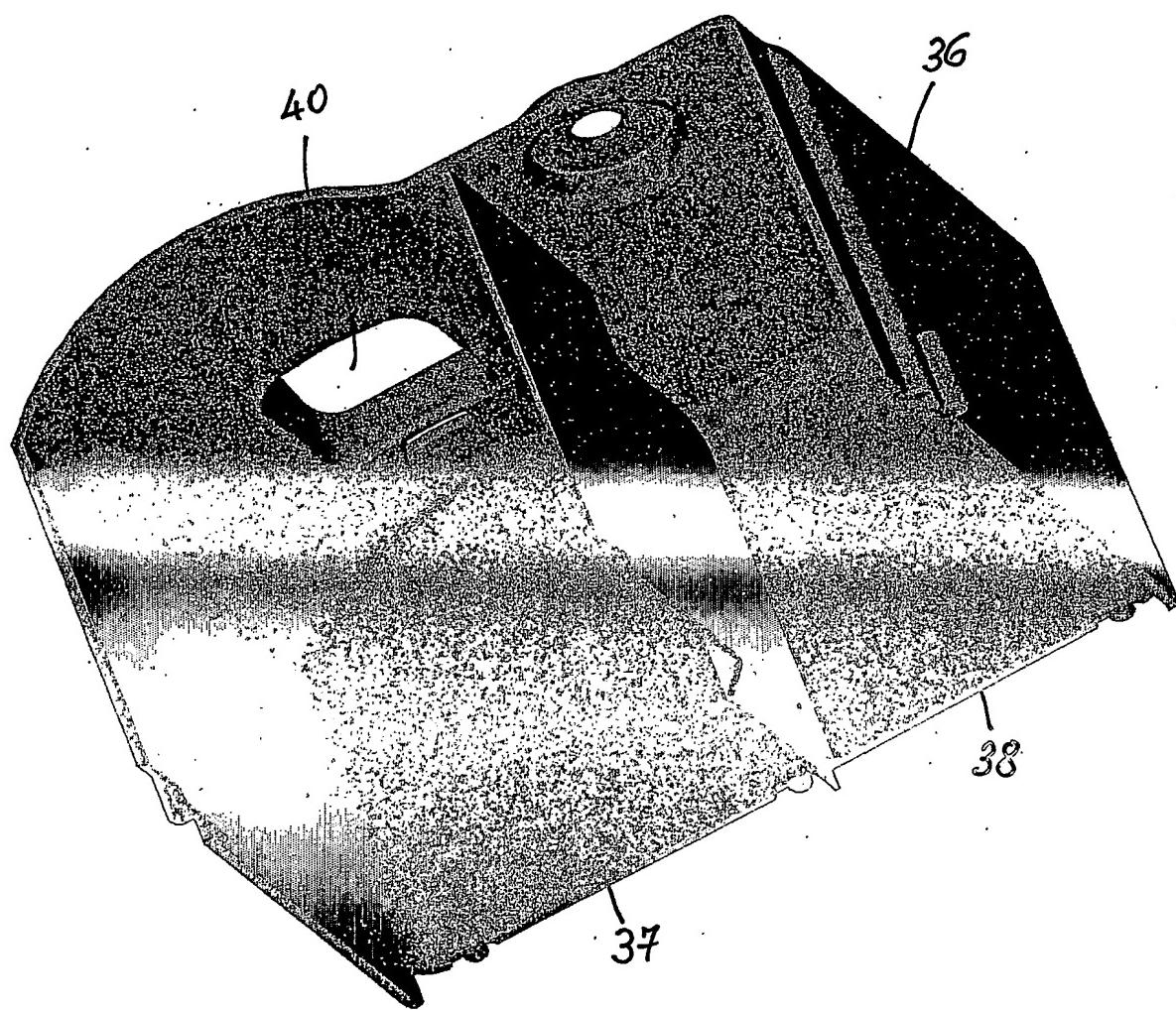


Fig. 8

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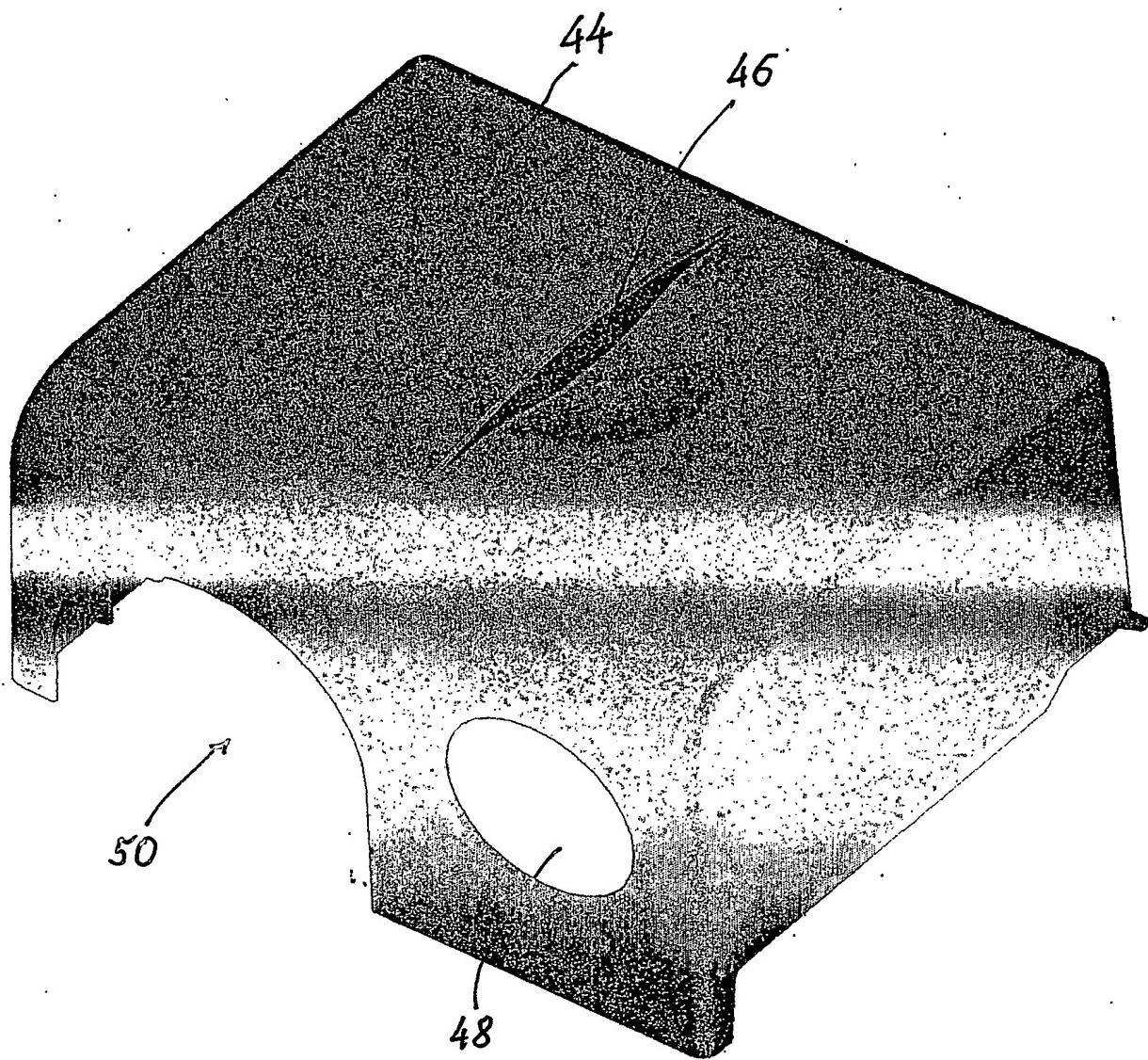


Fig. 9

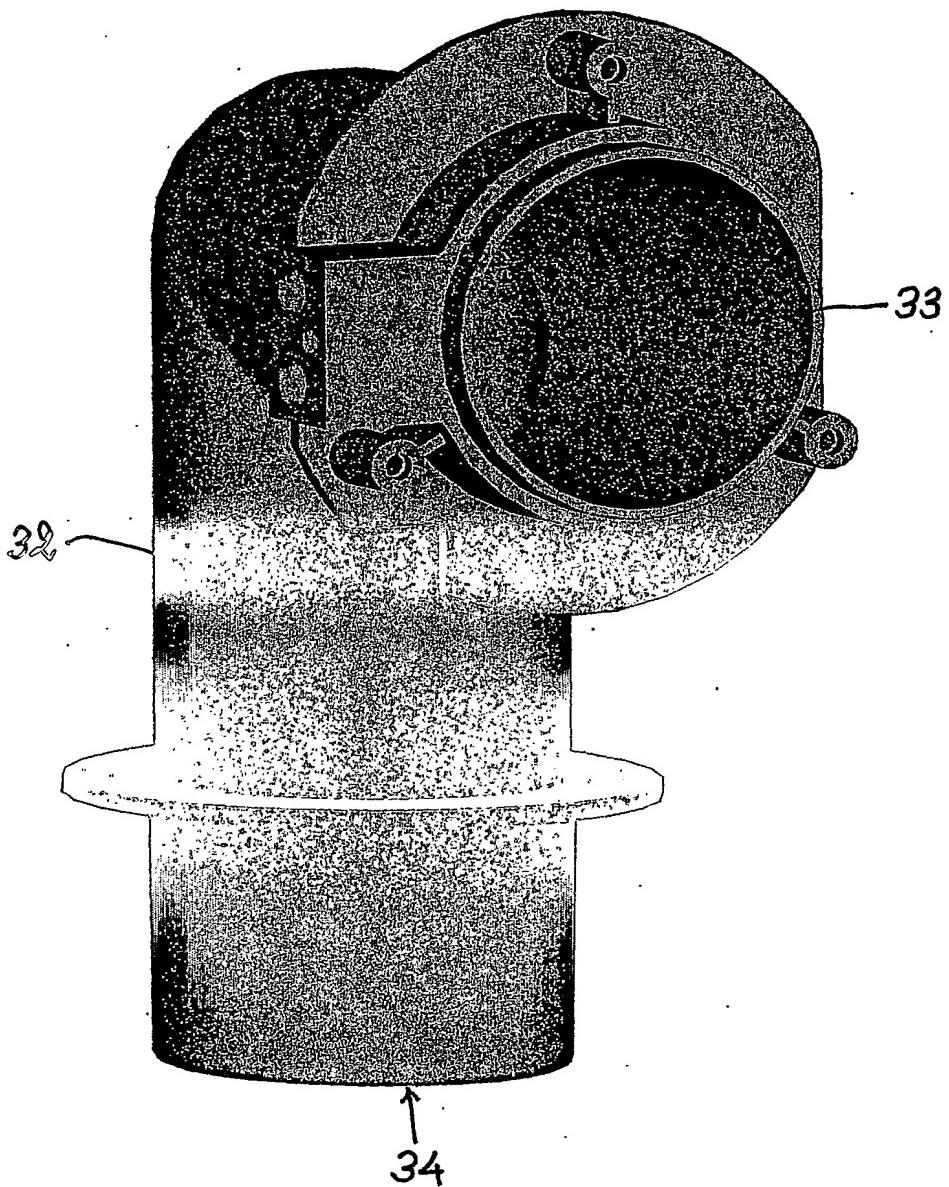


Fig. 10

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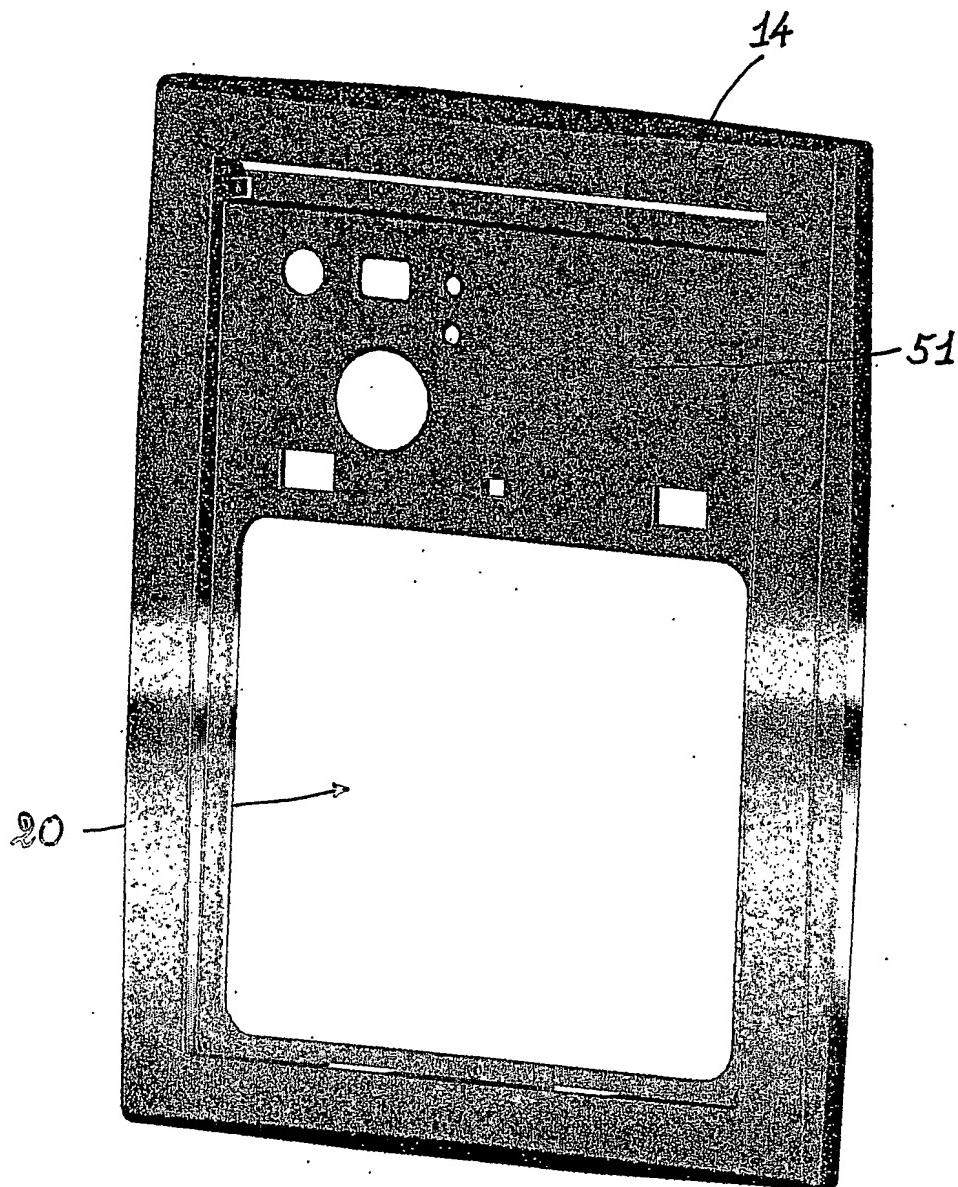


Fig. 11